JOINT TECHNOLOGY EXCHANGE GROUP

Annual Report 2001

THE JOINT TECHNOLOGY EXCHANGE PROGRAM

INTRODUCTION

Department of Defense (DOD) depot maintenance activities must keep pace with ever-evolving weapon system technologies and increasingly stringent environmental requirements. Thus, the selection of cost-effective and efficient repair technologies is crucial to DOD depot maintenance managers. As the only joint service program that focuses on modernizing depot maintenance capability across the entire spectrum of DOD weapon systems, the Joint Technology Exchange Group (JTEG) is uniquely equipped to foster the rapid, low-risk transition of advanced technology into the depot maintenance community.

Since its inception the JTEG has worked to identify the depots' pressing technology needs and make solutions available by providing forums for exchanging information and leveraging the best commercial and DOD maintenance practices. Over the years, these forums have resulted in many partnerships, not only among the military services, but also with commercial contractors and consortia, laboratories, academia, and more.

Through these collaborations, the JTEG continues to promote the reduction of expenditures for research and development to foster a more cost-effective and efficient joint depot maintenance program.

The first edition of the *JTEG Annual Report*

- ▲ characterizes the scope of the JTEG program,
- ▲ reviews the JTEG's activities and accomplishments during 2001, and
- ▲ provides an overview of what's on tap for 2002.

For more information on the program or any topic covered in this report, or if you have comments and suggestions, feel free to contact me or any member of the Joint Depot Maintenance Activity Group's (JDMAG) JTEG staff. I also invite you to visit our Web site at www.jdmag.wpafb.af.mil, where you'll find a wealth of information on the JTEG program and numerous depot maintenance technologies.

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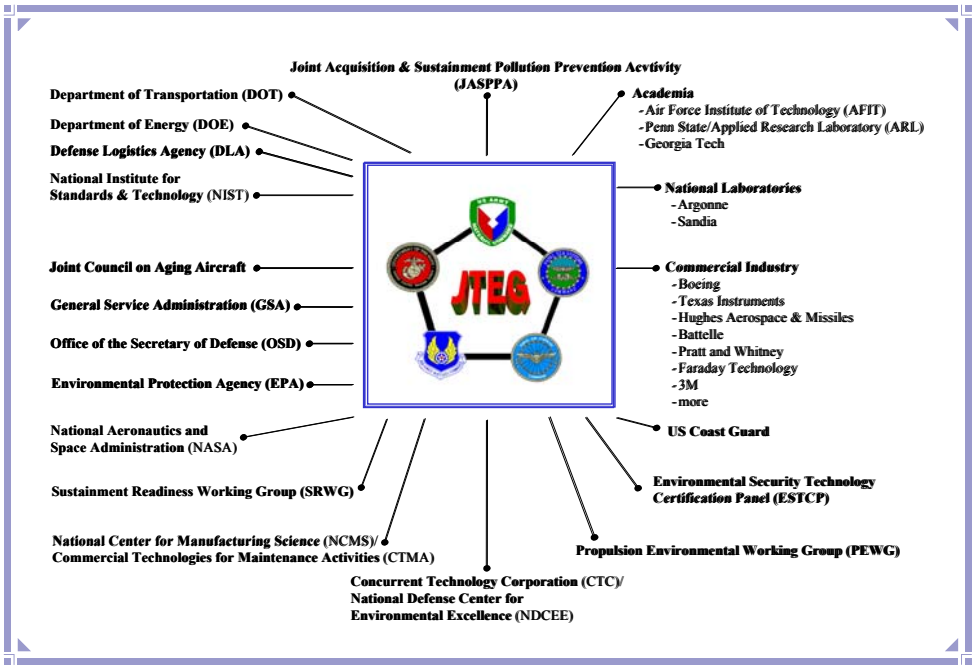


Figure 1. JTEG Interface Groups

BACKGROUND

In 1984 the Joint Group on Depot Maintenance (JG-DM) chartered the JTEG to facilitate the introduction of new and emerging technologies into the Defense Department's organic maintenance depots. Since then the group has accomplished this mission primarily through encouraging and assisting the military services, other government agencies, private industry, and academia to exchange technology information. The result has been the development of a comprehensive joint technology exchange program that works to minimize duplication of effort and maximize scarce developmental funds by combining the like technology requirements of the different services and government agencies.

ORGANIZATION

JDMAG's director chairs the JTEG, which consists of principal representatives from the services and the Defense Logistics Agency (DLA), and members of the JDMAG staff. However, the arena in which JTEG operates encompasses many DoD and government agencies, as well as academia and commercial industry. Figure 1 shows the organizations with which the JTEG interfaces. Additionally, the JTEG has a network of contacts, including experts in various technology fields at each organic depot and representatives of other government agencies. To expand this network and increase the flow of information both to and from the program, the JTEG plays a key role in the Office of the Secretary of Defense (OSD)-sponsored Commercial Technologies for Maintenance Activities (CTMA) program and partners with the following technology-oriented joint groups:

- Propulsion Environmental Working Group (PEWG).
- Sustainment Readiness Working Group (SRWG).

MISSION

The JTEG works to promote interservice coordination and collaboration in the introduction of new technology, equipment, and processes into the DOD depot maintenance community. The group continuously works toward accomplishing the following goals:

- Identifying new and emerging depot maintenance technology requirements.
- Leveraging joint service and industrial expertise in support of enhanced DOD sustainment readiness.
- Identifying ways to improve the capabilities of the DOD maintenance depots while minimizing duplication and associated costs.

STRATEGY

Depot maintenance activities make up the major portion of the DOD industrial base, which forms the foundation upon which the readiness and sustainment of the armed forces rests. To keep pace with industrial technology developments and ensure that readiness and sustainment are not degraded, the depots must continually modernize in the most cost-effective manner possible. In recognition of this, the JG-DM adopted a strategy in 1991 that gives the DOD depot maintenance activities a unified policy on exchanging technology information. The strategy calls for the services to actively seek and share existing and emerging technologies to

- improve industrial processes,
- increase efficiencies,
- reduce the environmental impact of depot maintenance, and
- reduce costs.

By ensuring that the services maximize interservice and intraservice cooperation and coordination, the strategy provides the forum for interaction and information dissemination.

ACTIVITIES AND ACCOMPLISHMENTS

INFORMATION EXCHANGE

The key element in performing its mission, accomplishing its goals, and adhering to its strategy is the JTEG's multimedia approach to exchanging technology information, which includes the following:

- ▲ Presenting briefings at JTEG-sponsored technology meetings and workshops.
- ▲ Networking during open discussions and demonstrations conducted as part of its tri-annual meetings.
- ▲ Maintaining a comprehensive Web site.
- ▲ Publishing an online newsletter.
- ▲ Participating in meetings, conferences, and workshops sponsored by other government groups and industry.
- ▲ Maintaining a database of depot technology needs.
- ▲ Maintaining a network of depot technology experts.
- ▲ Partnering with other technology groups when possible.
- ▲ Publishing technology successes in the *Joint Depot Maintenance Circular*, which is distributed periodically to the depot maintenance community, OSD, and the services' logistics headquarters.

TECHNOLOGY EXCHANGE MEETINGS

The JTEG conducts three meetings a year at various DOD maintenance depots to facilitate briefings on new technology applications and process demonstrations. Meetings are topically oriented, and participation is open to the depot maintenance community, industry, and academia.

MEETING CRITIQUES

To improve the quality and relevance of the technology information provided at the tri-annual meetings, the JTEG uses critiques to solicit comments from attendees about the meetings and the program in general. This feedback is compiled and used as a resource to

- ▲ address current and future technology needs,
- ▲ enhance the JTEG program, and
- ▲ assess the effectiveness of JTEG services, products, and meetings.

In general, respondents to the critiques felt that most of the meeting contents were

JTEG meeting, Lima Army Tank Plant, Ohio, July 2001

DATE	LOCATION	THEME	ATTEN-DEES	BRIEF-INGS	TECH. DEMOS
Mar. 21-23	US Coast Guard Aviation Repair and Supply Center, Elizabeth City, N.C.	Improved Industrial Processes	43	20	6
July 24-26	Lima Army Tank Plant, Ohio	Industrial Machining and Metal Finishing Technologies	37	13	8
Nov. 5-6	Warner Robins Air Logistics Center, Robins AFB, Ga.	Avionics and Electronics	51	18	6

Table 1. JTEG MEETINGS

beneficial to the industrial needs of their facilities. The most common positive comment encouraged the JTEG to "continue the outstanding job," while the need for larger conference facilities was the only negative concern. Specifically, the critiques, which also are available on the JTEG Web site, showed interest in

- ▲ increased sharing and partnering of technology resources,
- ▲ more environmental technologies and processes,
- ▲ continued forums for exchanging technology information,
- ▲ presentation of more leading-edge technologies, and
- ▲ increased depot participation.

TECHNOLOGIES DATABASE

Available on the JTEG Web site, this database contains comprehensive and historical information on depot maintenance technology development projects. The database, which is updated semiannually by JDMAG's JTEG staff, contains 768 projects, 23 of which are currently active. Details on the remaining closed projects provide a valuable research tool for the joint depot maintenance community. JDMAG's JTEG staff categorizes the projects by the following technology areas and posts them accordingly on the JTEG Web site.

- ▲ Best Business Practices
- ▲ Cleaning and Stripping
- ▲ Composites
- ▲ Corrosion Control
- ▲ Electronics
- ▲ Environmental/Hazardous Materials
- ▲ Improved Maintenance Practices
- ▲ Laser Applications
- ▲ Machining, Metalworking, and Fabrication
- ▲ Plating
- ▲ Quality and Inspection Processes
- ▲ Surface Finishing
- ▲ Test and Evaluation

TECHNOLOGY NEEDS

Focusing on continued process improvement at the depots, the JTEG identified the services' most pressing technology needs. JDMAG's JTEG staff has matched these needs, which will be updated annually, with known solutions from the technologies database according to the technology areas listed above.

PRELIMINARY EVALUATIONS

The JTEG developed a process for the depots to participate in the preliminary testing and evaluation of new technologies, products, and processes with potential maintenance applications. The process should help the services determine the feasibility for more formal evaluations by providing test results and other data. It will reduce duplication and increase information exchange by revealing benefits and lessons learned to decision-makers at the depots.

NEWSLETTER

JDMAG's JTEG staff produced a quarterly Web-based publication that allows readers to request more information about the technology bulletins and articles it contains. Called the *Joint Technology Exchange Report*, this newsletter focuses specifically on the JTEG's current events and accomplishments. It contains an automated feedback form that delivers customer responses to JMDAG's JTEG staff for follow-up.

Since the first issue was published in February 2001, the newsletter has generated an average of 260 Web "hits" per month and more than 50 requests for information on 17 topics. Figure 2 shows the number of Web hits generated per issue by month.

In keeping with the JTEG's mission of exchanging depot maintenance technology information, JDMAG has used this feedback mechanism to research and provide comprehensive data to the four services, industry, and academia.

Figure 3 shows the percentage of information requests generated per topic by organization. The JTEG will continue to use this and other types of communication to make sure the "right" kind of information reaches the joint depot maintenance community.

MAINTENANCE AND LOGISTICS CALENDAR

Compiled by JDMAG's JTEG staff, this calendar is available on the JTEG Web site. It lists information about maintenance and logistics meetings and symposiums conducted by industry, academia, and government agencies. These meetings provide exposure and access to potential depot maintenance technology resources.

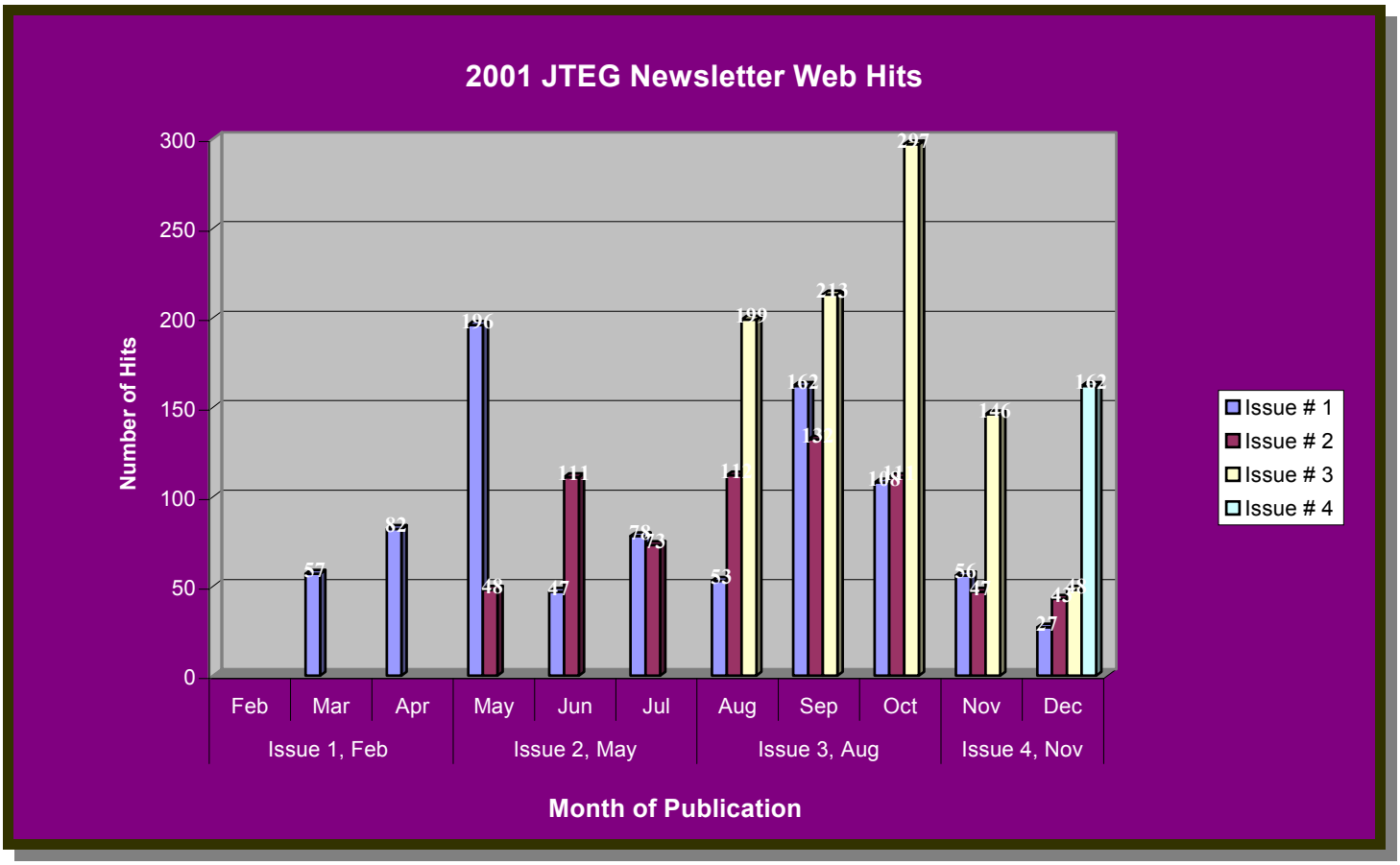


Figure 2. Web Hits for the Joint Technology Exchange Report by Month

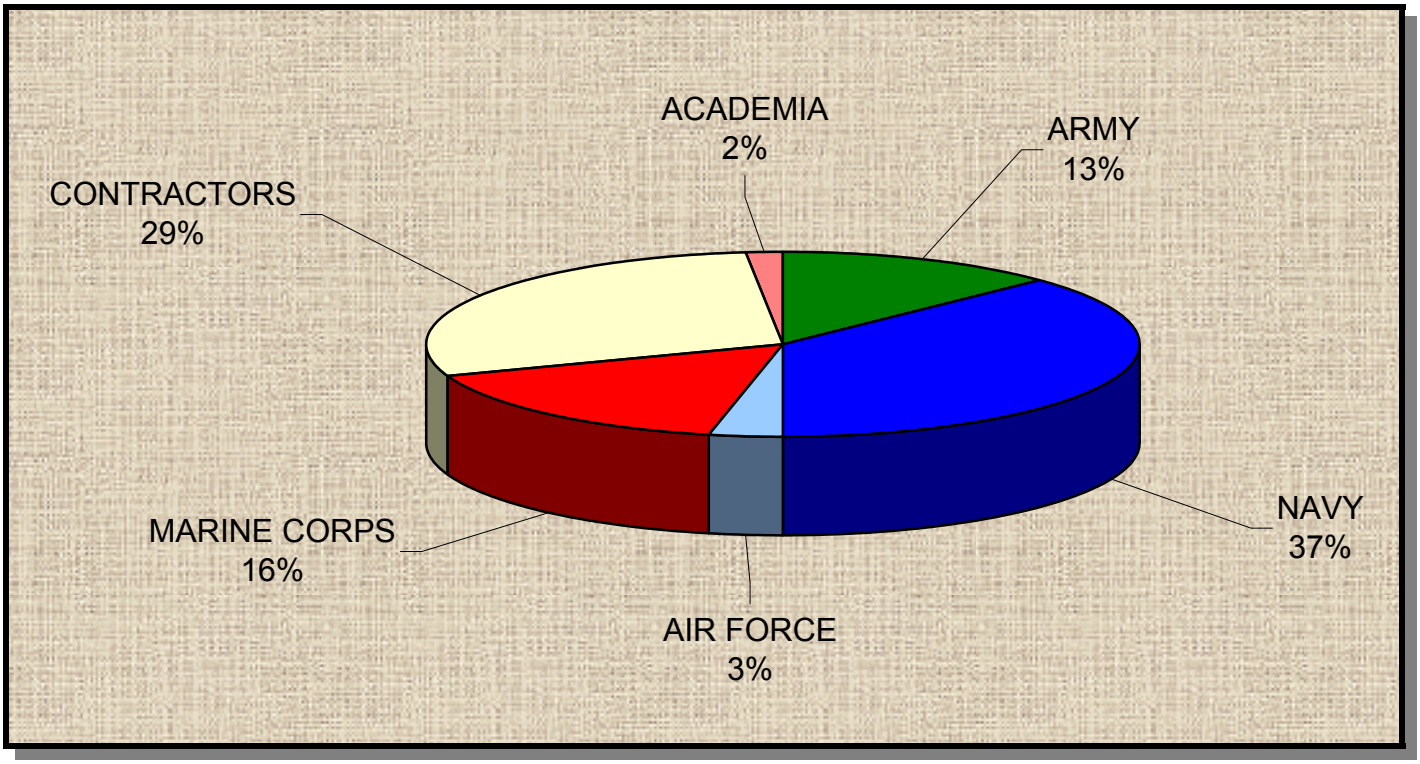


Figure 3. JTEG Newsletter Requests by Entity

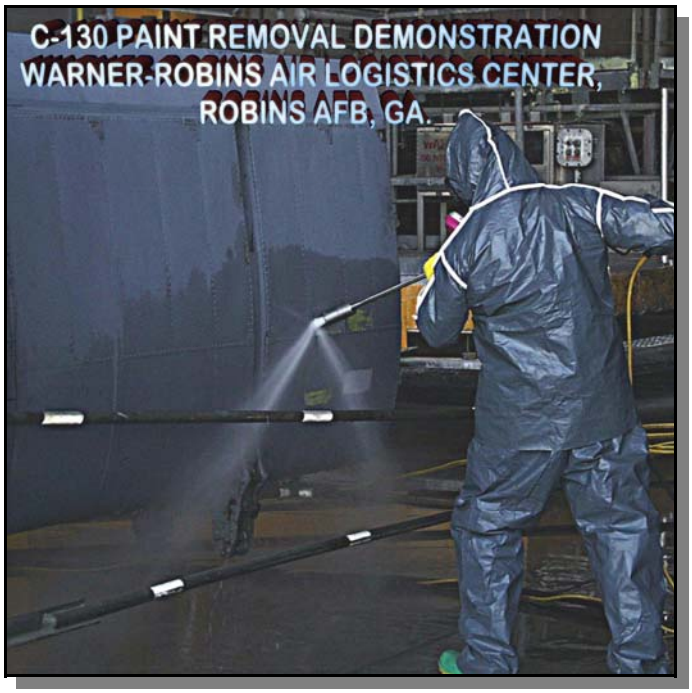
JOINT PAINT REMOVAL STUDY

The results of an extensive study of five paint removal processes the Defense Department uses in its depot maintenance operations are available on the JTEG Web site. The JG-DM directed this effort several years ago, with the objective of providing information to curtail or eliminate duplicate developmental depainting efforts.

The study provided facility and process managers with coordinated joint service technical information to help them with investment and application decisions as they replaced current chemical stripping methods. It focused on the following paint removal processes:

- ▲ Carbon Dioxide Pellet Blast,
- ▲ Plastic Media Blast,
- ▲ Sodium Bicarbonate Paint Stripping,
- ▲ High-Pressure Water Blasting, and
- ▲ Laser Paint Removal.

Requested by numerous government agencies, the paint removal study remains a valuable technology and environmental research tool.



2001 RECAP

During 2001, the JTEG undertook several initiatives to promote collaborative, cost-effective depot maintenance technology insertion through information exchange. Notable initiatives include

- ▲ Soliciting significant technology needs from the services and matching them with potential solutions.
- ▲ Developing a process for conducting preliminary evaluations of depot maintenance industrial processes.
- ▲ Forming joint partnerships to foster technology transfer efforts.
- ▲ Publishing an interactive Web-based newsletter.
- ▲ Developing a customer satisfaction survey.

TECHNOLOGY EXCHANGE MEETINGS

The JTEG tracked the number and types of briefings presented at each of the following meetings conducted during the past year and compiled statistical information about the attendees and presenters as shown in Table 1 on page 5.

- ▲ Significant briefing topics at the Coast Guard meeting included
  - Solid Freeform Fabrication,
  - Electronic Collaborative Maintenance,
  - Plasma Energy Pyrolysis,
  - Plastic Media Blast Closed Loop Recycling,
  - Industrial Waste Sludge Drying, and
  - Automated Rotor Blade Repair.

- ▲ Significant briefing topics at the Army meeting included
  - Near-Dry Machining of Aluminum,
  - Non-Chlorinated Stripping,
  - Laser Cracking and Welding for Light Armored Vehicles,
  - SoyGel Cleaner/Stripper, and
  - Russian Erosion Resistant Coatings.

- ▲ Significant briefing topics at the Air Force meeting included
  - Robotic Aircraft Maintenance,
  - Sol-Gel Cleaner/Degreaser, and
  - Modernizing Automated Test Equipment.

- ▲ Significant technology demonstrations presented at JTEG meetings in 2001 included
  - M1A1 Abrams Main Battle Tank Assembly/Systems Check,
  - Cleaning and Depainting Processes with Sol-Gel,
  - Portable Hand-Held Laser Depainting,
  - Flashjet Depainting, and
  - Aircraft Depainting Operations.

TECHNOLOGY NEEDS

The three regular JTEG meetings held during the past year addressed the services' identified depot maintenance technology needs by devoting 24 of the 51 briefings presented to 11 concerns. Figure 4 shows the needs and the number of specific briefings that addressed each one. The remaining 27 briefings presented in 2001 addressed new and emerging technologies or enhancements to existing depot processes.

JTEG TECHNOLOGY PROJECTS

In 2001, the JTEG opened five new projects and closed seven. Of the opened projects, one of the most significant was Lactate Ester.

Current Technologies Corporation (CTC) was Congressionally funded to test and evaluate lactate ester as an environmentally friendly cleaning, degreasing, and depainting agent. JDMAG's JTEG staff identified depot contacts that could participate in this project and coordinated related technical information.

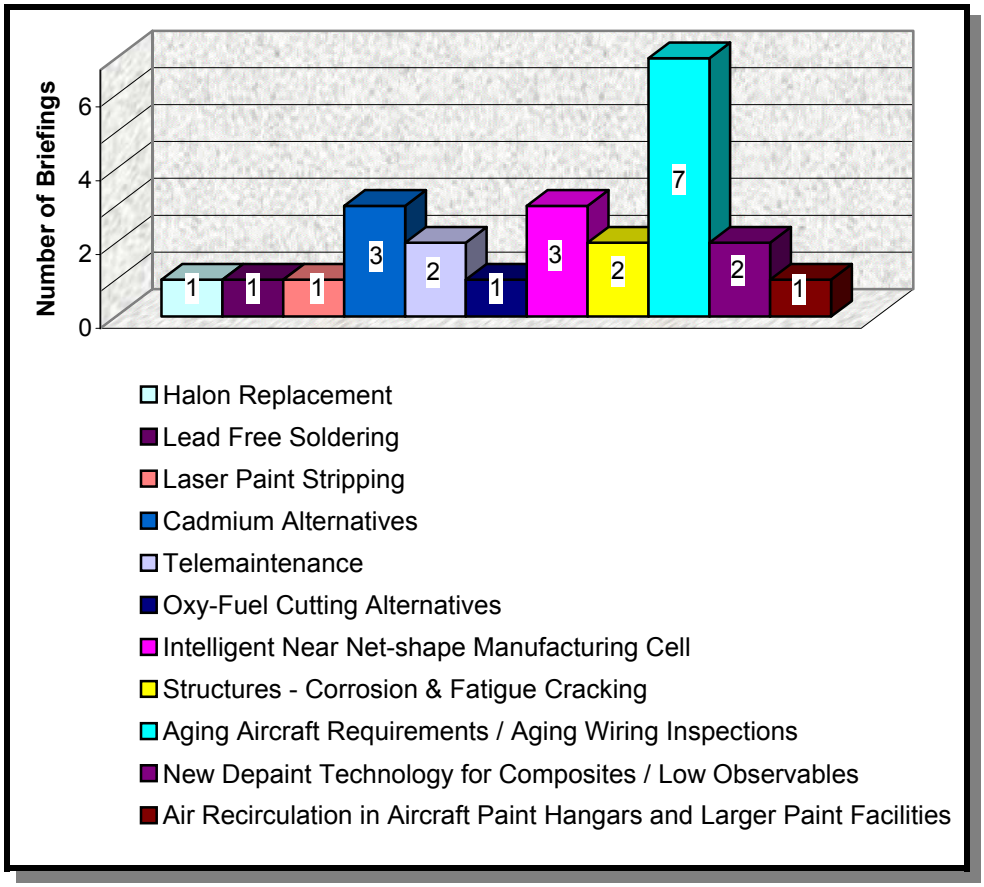


Figure 4. Depot Technology Needs Addressed at JTEG Meetings

AD-HOC INFORMATION REQUESTS

The JTEG often is called upon to lend advice and assistance in technology efforts that fall outside the realm of adopted JTEG projects. Some significant requests for technology information during 2001 follow.

- *Naval Air Systems Command (NAVAIR) Honeycomb Panel Broad Agency Announcement* - JDMAG's JTEG staff helped NAVAIR find needed sources of repair for composite and metal honeycomb structures in aerospace applications.
- *Request for Powder Coating Technologies* - JDMAG's JTEG staff helped Naval Air Depot (NADEP), Jacksonville, Fla., research DOD and commercial industry sources for procuring powder coatings. They also assisted in locating facilities that use state-of-the-art powder coating applications in their manufacturing and repair processes.
- *Army Recapitulation Savings* - JDMAG's JTEG staff helped the Army Materiel Command with potential savings in operational funding by providing information on the JTEG's Phased Array Antenna project.
- *Depot Maintenance Plant Equipment (DMPE)* -JDMAG's JTEG staff helped the Army Communications Electronics Command at Fort Monmouth, N.J., locate current established Army and DLA policies for DMPE.
- *NASA Request for Frequency Material Sources* - NASA requested a list of suppliers to DOD for radio frequency absorbent material for use in DOD anechoic test chambers. JDMAG'S JTEG staff compiled the information and submitted the needed data to the Marshall Space Flight Center, Huntsville, Ala.

2002 OUTLOOK

Continued successful cooperative technology insertion hinges upon the availability of opportunities for collaborative joint interaction. During 2002, the JTEG will play a key role in providing such opportunities for the joint depot maintenance community by sponsoring or participating in the following events:

PEWG Meeting

February 4-7, San Diego. The PEWG is a joint DOD and propulsion industry partnership working to discover and qualify advanced green technologies that enhance the readiness, durability, and affordability of military propulsion and power systems.

Defense Sustainment Symposium

April 16-18, NADEP Jacksonville, Fla. The JTEG, NCMS/CTMA, SRWG, and the Joint Council on Aging Aircraft will host this joint conference focusing on "Strengthening America's Military Readiness." Breakout sessions will feature technology presentations in the following areas: metals, non-metals, electronics, green manufacturing, and concurrent engineering/advanced business practices.

JTEG Meeting

July 16-18, Portsmouth Naval Shipyard, Kittery, Maine. The meeting will focus on new and emerging technologies and on the needs of the DOD depot maintenance community.

DOD Maintenance Symposium

Oct. 28-31, Reno, Nev. The theme for this symposium is "Turning Logistics Resources into Readiness." The JTEG is reviewing opportunities to sponsor speakers at the many technology-oriented tracks being considered for the symposium.

CONTINUED PROCESS IMPROVEMENT

The JTEG implemented several new and exciting innovations during 2001, such as

- identifying the pressing technology needs of the joint depot maintenance community,
- developing a process to conduct preliminary evaluations on new depot maintenance technologies, and
- producing the *Joint Technology Exchange Report*.

During 2002, the JTEG hopes to build on the accomplishments outlined in this annual report and leverage its technology expertise across a wide spectrum of DOD depot maintenance issues and initiatives. By focusing on its mission of disseminating and exchanging technology information, the group will help the military services identify the new and emerging technologies needed to continuously improve their depot maintenance operations.

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